

REMARKS/ARGUMENTS

Attached hereto is a Terminal Disclaimer over copending application Serial No. 10/534,299 addressing the double patenting rejection and the Declaration of Jean-Pierre Catinat addressing the Examiner's comments set forth at page 4, middle, of the outstanding Official Action, where the Examiner has stated:

The Applicants arguments with respect to additional examples and reference to examples in Specification have been considered but the examiner believes that the prior art references when combined would give one an easy method for obtaining high purity epichlorohydrin product that would inherently overcome the reduced catalyst life problem relied upon by Applicants for patentability. Granting a patent on the discovery of an unknown but inherent function would re-move from the public that which is in the public domain by virtue of its inclusion in, or obviousness from, the prior art. For the above reasons the rejection of 11-20 is maintained.

The Examiner is reminded that the outstanding rejection is an obviousness rejection. In reconsidering whether a *prima facie* case exists in the face of Applicants' rebuttal evidence the question is not what would flow inherently from the theoretical combination of the references, the question is whether Applicants have presented evidence of unexpected results that overcomes the *prima facie* case.

What would flow inherently from the theoretical combination of the references is ALWAYS exactly what flows from the actual invention itself when there is a valid *prima facie* case. This is because the theoretical combination of references that make up a valid *prima facie* case IS the invention - they match. If the inquiry was as the Examiner would have it no *prima facie* case could be overcome upon a showing of unexpected results because there never could be unexpected results.

It is legal error for the Office to dismiss a showing of unexpected results as flowing from or inherent in the Examiner's prior art construct (in this case, the combination of

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Strebelle, Nakanishi and Gilbeau). As stated in In re Sullivan, 84 USPQ2d 1034 (Fed. Cir. 2007) (emphasis added):

It is well settled that the PTO “bears the initial burden of presenting a prima facie case of unpatentability.... However, when a prima facie case is made, the burden shifts to the applicant to come forward with evidence and/or argument supporting patentability.” *In re Glaug*, 283 F.3d 1335, 1338 (Fed. Cir. 2002). Rebuttal evidence is “merely a showing of facts supporting the opposite conclusion.” *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

Evidence rebutting a prima facie case of obviousness can include:

“evidence of unexpected results,” *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1369 (Fed. Cir. 2007), evidence “that the prior art teaches away from the claimed invention in any material respect,” *In re Peterson*, 315 F.3d 1325, 1331 (Fed. Cir. 2003), and evidence of secondary considerations, such as commercial success and long-felt but unresolved needs, *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999). When a patent applicant puts forth rebuttal evidence, the Board must consider that evidence. See *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995) (stating that “all evidence of nonobviousness must be considered when assessing patentability”); *In re Sernaker*, 702 F.2d 989, 996 (Fed. Cir. 1983) (“If, however, a patent applicant presents evidence relating to these secondary considerations, the board must always consider such evidence in connection with the determination of obviousness.”).

In addition to their showing that there is no *prima facie* case, Applicants have shown that that when the pH is controlled and maintained at a value of greater than or equal to 1.5 and less than 4.8, unexpectedly the selectivity of the epoxidation is higher without excessively reducing the activity of the catalyst, in comparison with a process carried out without such control of the pH.

The Examiner has put forth no reasoning that would support a conclusion that, *looking forward*, such an improvement would have been expected from the combination of Strebelle, Nakanishi and Gilbeau. Rather, the Examiner looks backwards and concludes that because it is his opinion that the references present a *prima facie* case any property, benefit, or characteristic of the invention Applicant wishes to discuss in rebuttal is meaningless. This is completely improper and, at best, is a classic case of requiring comparison of the results of

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the invention with the results of the invention. See MPEP 716.02(e) and *In re Chapman*, 357 F.2d 418, 148 USPQ 711 (CCPA 1966).

As noted above in *In re Sullivan*, another source of rebuttal evidence is “evidence ‘that the prior art teaches away from the claimed invention in any material respect.’” In this case the attached Declaration explains that the prior art does in fact teach away from what Applicants have shown herein.

Specifically, during prosecution in Europe WO 99/48882 (D1), EP-A-1 072 600 (D2), and EP-A-1 085 017 (D3) were cited against the European application corresponding to this U.S. case (these references are of record in this U.S. patent application). References D1 to D3 are important because all their examples teach that a decrease in the pH of the reaction medium to a value included in the range claimed according to this invention has the effect of substantially decreasing the selectivity of the epoxidation reaction. This is the *opposite* of what Applicants have found herein.

In addition, none of the examples of these three references makes it possible to achieve, at the same time, a good selectivity of the epoxidation reaction without decreasing the speed/rate of conversion of the hydrogen peroxide. In D1, a decrease in pH from 5.5 to 4.0 has the effect of decreasing the selectivity from 90.7 to 84.0% (Examples 1 and 2). In D2, a pH of 6.0 for the reaction medium leads to a selectivity of 97.2% and a rate of conversion of hydrogen peroxide of 96% after 30 hours (Example 3), whereas, if the pH of the reactiol medium is decreased to 4.5, these percentages become respectively 80% and 75% (Example 2). In D3, a pH of 5.46 for the reaction medium leads to a selectivity of 78.4% (Example 12), decreasing to 66.8% when the pH of the reaction medium is decreased to 4.39 (Example 7), the rate of conversion of the hydrogen peroxide being unchanged (58% after approximately 5 hours).

These references and the attached Declaration thus show that what is obtained with the present invention - high selectivity of the epoxidation reaction without decreasing, or even while increasing, the rate of conversion of the hydrogen peroxide - is not expected and, in fact, is contrary to what is taught in the references. For example, comparison of specification examples 1 and 3 (with adjustment of the pH) with specification examples 2 and 4 (without adjustment of the pH) clearly shows the positive effect of pH adjustment on the selectivity of the epoxidation reaction, while the rate of conversion of the hydrogen peroxide is only very slightly reduced (from 85.1 to 83.3% after 78 hours in examples 1 and 2) or is even improved (rate of conversion of 92% after 195 hours with adjustment of the pH in comparison with the same rate of conversion but after only 53 hours without pH adjustment):

TABLE 1

Time (h)		Example 1 With regulation	Example 2 Without regulation
25	Conversion (%)	95.3	96.9
	EPI/C3f selectivity (%)	96.9	93.7
50	Conversion (%)	89.3	92.1
	EPI/C3f selectivity (%)	97.2	94.3
78	Conversion (%)	83.3	85.1
	EPI/C3f selectivity (%)	97.4	94.4

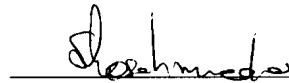
TABLE 2

	Example 3 T°: 65° C. With pH regulation	Example 4 T°: 55° C. Without pH regulation
Degree of conversion	92.0	92.2
H ₂ O ₂ (%)		
EPI/C3f selectivity (%)	96.3	94.4
Time (h)	195	53

Because these unexpected results are important in this art as catalyst life and selectivity are important factors in the economic viability of a process, the showing of unexpected results herein and the teaching away by the art overcomes any initial *prima facie* case presented by the references. As such, the rejections should be withdrawn, and this case passed to Issue.

Respectfully submitted,

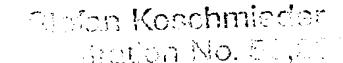
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